286HT SINGLE CHIP SYSTEM BOARD

USER'S MANUAL

CONTENTS

ITEM 3 Hard Disk drives

For hard disk drives, use the <PgUp> and <PgDn> keys to cycle through the 46 types of disk drives supported. Type 47 is given to help the user to define his own drive type which will be stored in the CMOS. To select the hard disk type, please refer to the following table.

AMI BIOS HARD DISK DRIVE TABLE

TYPE	CYLN	HEADS	WPcom	LZone	CAPACITY
1	306	4	128	305	10 MB
2	615	4	300	615	20
3	615	6	300	615	31
4	940	8	512	940	62
5	940	6	512	940	47
6	615	4	FFFF	615	20
7	462	8	256	511	31
8	733	5	FFFF	733	30
9	900	15	FFFF	901	112
10	820	3	FFFF	820	20
11	855	5	FFFF	855	35
12	855	7	FFFF	855	50
13	306	8	128	319	20
14	733	7	FFFF	733	43
15	000	0	0000	000	00
16	612	4	0000	663	20
17	977	5	300	977	41
18	977	7	FFFF	977	57
19	1024	7	512	1023	60
20	733	5	300	732	30
21	733	7	300	732	43
22	733	5	300	733	30
23	306	4	0000	336	10

TYPE	CYLN	HEADS	WPcom	LZone	CAPACITY
24	925	7	0000	925	54
25	925	9	FFFF	925	69
26	754	7	754	754	44
27	754	11	FFFF	754	69
28	699	7	256	699	41
29	823	10	FFFF	823	68
30	918	7	918	918	53
31	1024	11	FFFF	1024	94
32	1024	15	FFFF	1024	128
33	1024	5	1024	1024	43
34	612	2	128	612	10
35	1024	9	FFFF	1024	77
36	1024	8	512	1024	68
37	615	8	128	615	41
38	987	3	987	987	25
39	987	7	987	987	57
40	820	6	820	820	41
41	977	5	977	977	41
42	981	5	981	981	41
43	830	7	512	830	48
44	830	10	FFFF	830	69
45	917	15	FFFF	918	114
46	1224	15	FFFF	1223	152
47	USER TYPE				

ITEM 4 Primary display

Select the Primary display field to establish the primary video display adapter type. Press the <PgUp> and <PgDn> keys to cycle through the available settings:

* Monochrome (Monochrome adapter, including MGA, MGP and Hercules).
* Color 40x25 (Color Graphics Adapter initialized in 40-column mode).
* EGA (Enhanced Graphics Adapter) or VGA (Video Graphics Array).
* Color 80x25 (Color Graphics Adapter initialized in 80-column mode).

ITEM 5 Bypassing keyboard error

To configure the system for non dedicated file servers, you set the keyboard "Not installed" in the SETUP menu so that BIOS will not report any "keyboard error" and will not wait for <F1> key to be pressed during system boot.

ITEM 6 BIOS shadow

Select the BIOS shadow field to establish the shadow type. Press the <PgUp> and <PgDn> keys to cycle through the available settings:

* Disable (To disable shadow RAM function).
* Video BIOS (To shadow video BIOS).
* Main BIOS (To shadow mainboard BIOS).
* Main and video BIOS (To shadow mainboard and video BIOS).

ITEM 7 EMS memory size (optional)

This allows you to set the memory off on the system board which should be used for EMS memory. This option is only available on system boards which support EMS memory. Select EMS size field. Press the <PgUp> and <PgDn> keys to cycle through the available settings.

ITEM 8 Wait state selection (optional)

This feature allows the user to select either zero or one wait state of memory access by the select zero wait state field. Press the <PgUp> and <PgDn> keys to cycle through the available setting field.

Press the <PgUp> and <PgDn> keys to cycle through the available settings.

* Enable: RAM access 0 wait state.
* Disable: RAM access 1 wait state.

After you have finished with the SETUP program, press the <Esc> key. A prompt will appear:

```
Write data into CMOS and exit (Y/N)
```

Type <Y> and then press the <Enter> key. The computer will reboot and finish the setup procedures.

4-2 AMI NEW BIOS SETUP

BIOS SETUP PROGRAM – AMI BIOS SETUP UTILITIES
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STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT

Standard CMOS Setup for Changing Time, Date, Hard Disk Type, etc.

ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit

BIOS SETUP PROGRAM – STANDARD CMOS SETUP
(C) 1990 American Megatrends Inc., All Rights Reserved

Date (mn/date/year) : Mon, Jul 15, 1991
Time (hour/min/sec) : 13 : 09 : 36
Daylight saving : Disabled
Hard disk C: type : Not Installed
Hard disk D: type : Not Installed
Floppy drive A: : 1.2 MB, 5¼"
Floppy drive B: : Not Installed
Primary display : Monochrome
Keyboard : Installed

Base memory: 640 KB
Ext. memory : 256 KB

Cyln Head WPcom LZone Sect Size

Month : Jan, Feb, ...Dec
Date : 01, 02, 03,.....31
Year : 1901, 1902,.....2099

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

ESC: Exit ↓→↑←: Select F2/F3: Color
PU/PD: Modify

BIOS SETUP PROGRAM – AMI BIOS SETUP UTILITIES
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STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT

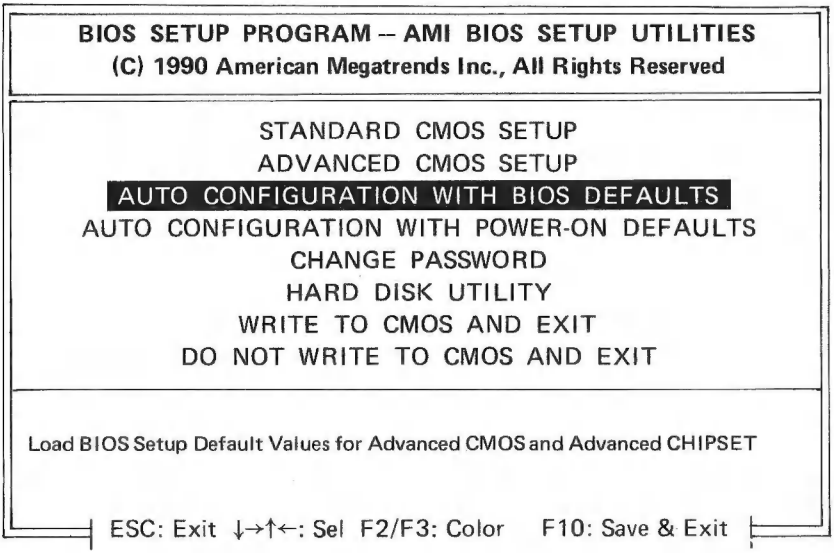
Advanced CMOS Setup for Configuring System options

ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit

BIOS SETUP PROGRAM – ADVANCED CMOS SETUP
(C) 1990 American Megatrends Inc., All Rights Reserved

Typematic Rate Programming	: Disabled	Adaptor ROM Shadow C800, 16K	: Disabled
Typematic Rate Delay (msec)	: 250	Adaptor ROM Shadow CC00, 16K	: Disabled
Typematic Rate (Chars/Sec)	: 10.0	Adaptor ROM Shadow D000, 16K	: Disabled
Above 1 MB Memory Test	: Disabled	Adaptor ROM Shadow D400, 16K	: Disabled
Memory Test Tick Sound	: Enabled	Adaptor ROM Shadow D800, 16K	: Disabled
Memory Parity Error Check	: Disabled	Adaptor ROM Shadow DC00, 16K	: Disabled
Hit <ESC> Message Display	: Enabled	Adaptor ROM Shadow E000, 16K	: Disabled
Hard Disk Type 47 RAM Area	: 0:300	Adaptor ROM Shadow E400, 16K	: Disabled
Wait For <F1> If Any Error	: Enabled	Adaptor ROM Shadow E800, 16K	: Disabled
System Boot Up Num Lock	: On	Adaptor ROM Shadow EC00, 16K	: Disabled
Numeric Processor	: Absent	System ROM Shadow F000, 64K	: Disabled
Floppy Drive Seek At Boot	: Enabled	BUS Speed Selection	: Low
System Boot Up Sequence	: A:, C:	Quiet BUS Selection	: Disabled
System Boot Up CPU Speed	: High	DRAM Wait State	: 0 W/S
Fast Gate A20 Option	: Disabled	EMS & Relocation Wait State	: EMS+Rel
Password Checking Option	: Disabled	Memory Relocation	: Enabled
Video ROM Shadow C000, 16K	: Disabled		
Video ROM Shadow C400, 16K	: Disabled		

ESC: Exit ↓→↑←: Sel (Ctrl) Pu/Pd: Modify F1: Help F2/F3: Color
F5: Old Values F6: BIOS Setup Defaults F7: Power-On Defaults


BIOS SETUP PROGRAM – AMI BIOS SETUP UTILITIES
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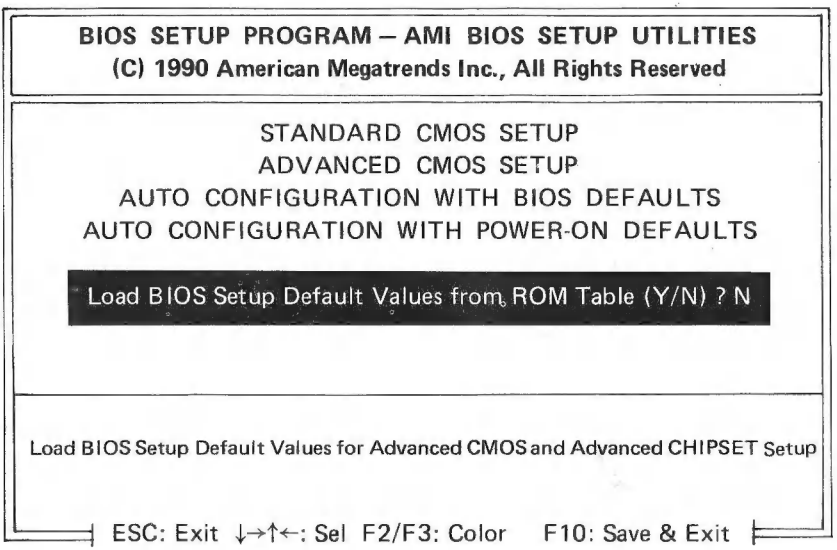
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Load BIOS Setup Default Values for Advanced CMOS and Advanced CHIPSET
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit


BIOS SETUP PROGRAM – AMI BIOS SETUP UTILITIES
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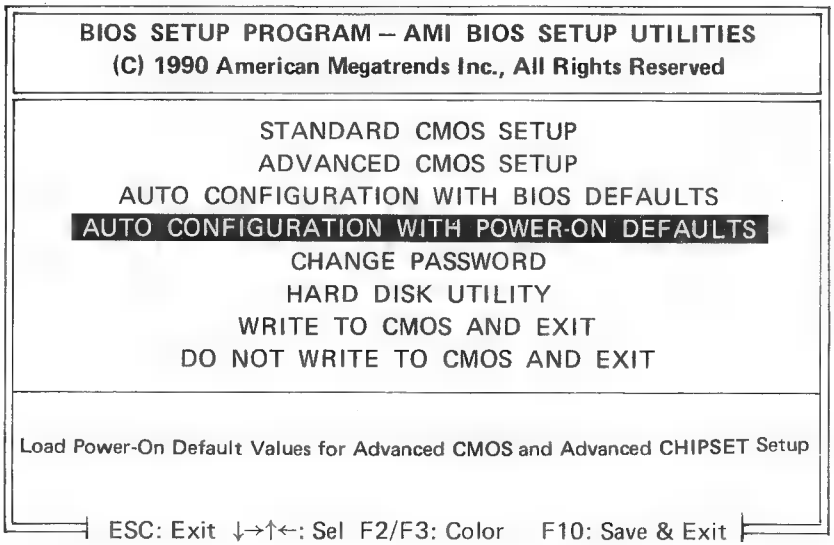
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
Load BIOS Setup Default Values from ROM Table (Y/N) ? N
Load BIOS Setup Default Values for Advanced CMOS and Advanced CHIPSET Setup
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit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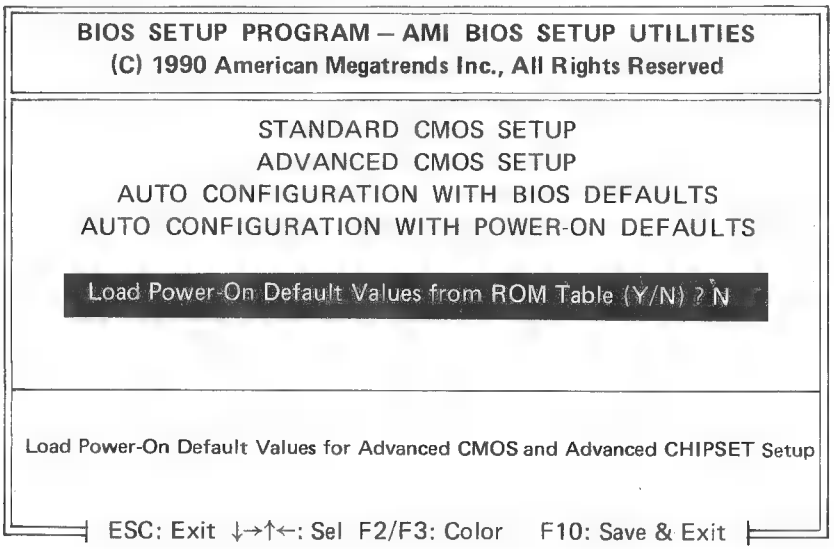
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Load Power-On Default Values for Advanced CMOS and Advanced CHIPSET Setup
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit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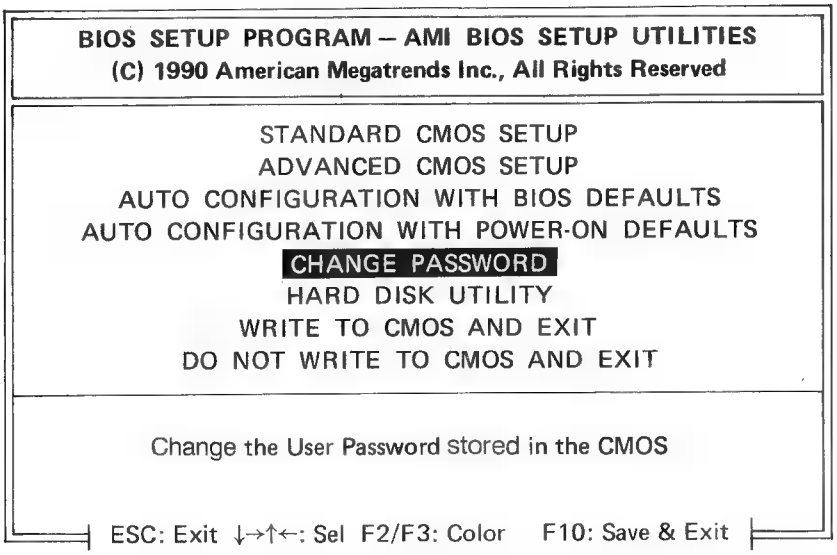
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
Load Power-On Default Values from ROM Table (Y/N) ? N
Load Power-On Default Values for Advanced CMOS and Advanced CHIPSET Setup
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit


BIOS SETUP PROGRAM – AMI BIOS SETUP UTILITIES
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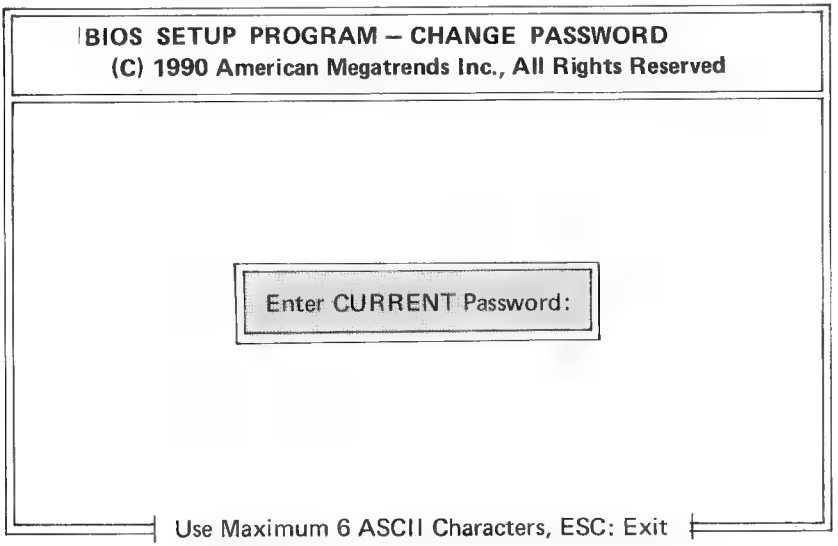
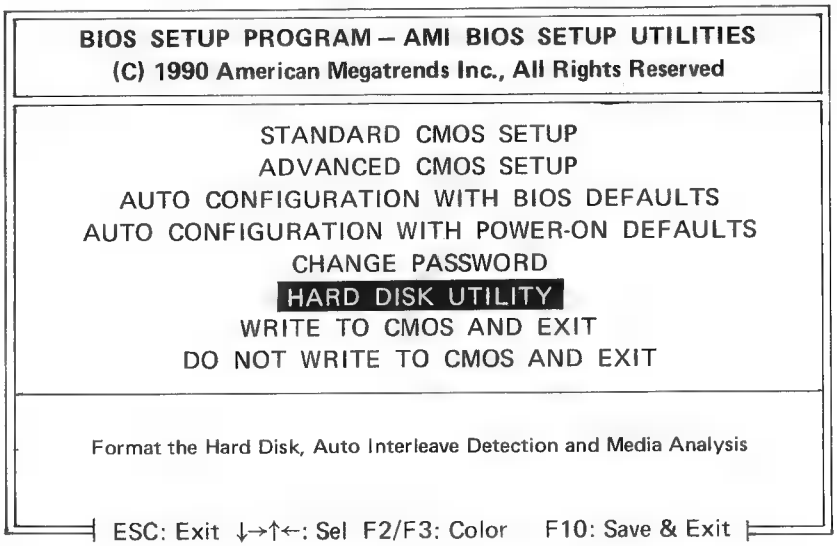
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Change the User Password stored in the CMOS
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit


BIOS SETUP PROGRAM – CHANGE PASSWORD
(C) 1990 American Megatrends Inc., All Rights Reserved
Enter CURRENT Password:
Use Maximum 6 ASCII Characters, ESC: Exit


BIOS SETUP PROGRAM – AMI BIOS SETUP UTILITIES
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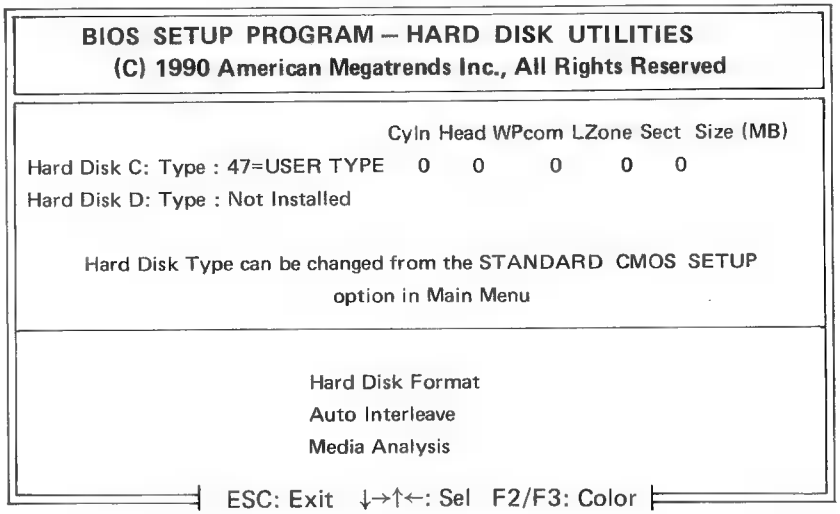
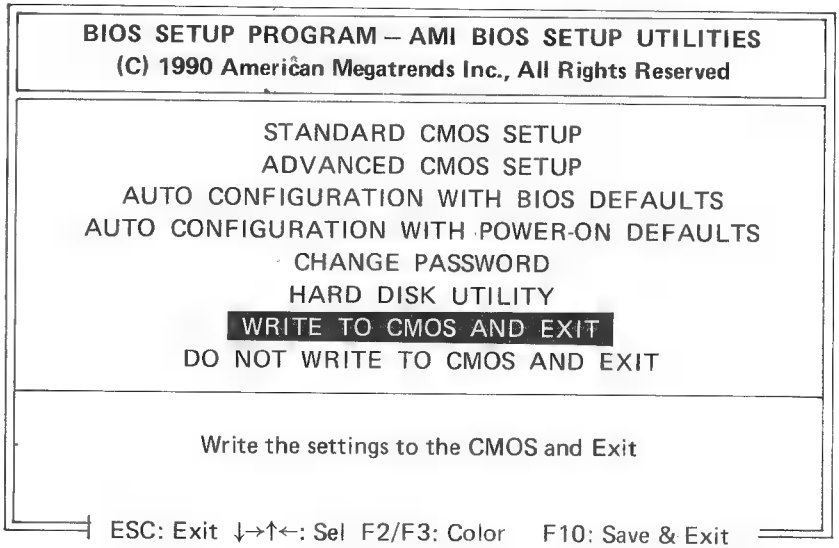
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Format the Hard Disk, Auto Interleave Detection and Media Analysis
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit


BIOS SETUP PROGRAM – HARD DISK UTILITIES
(C) 1990 American Megatrends Inc., All Rights Reserved
Cyln Head WPcom LZone Sect Size (MB)
Hard Disk C: Type : 47=USER TYPE 0 0 0 0 0
Hard Disk D: Type : Not Installed
Hard Disk Type can be changed from the STANDARD CMOS SETUP option in Main Menu
Hard Disk Format
Auto Interleave
Media Analysis
ESC: Exit ↓→↑←: Sel F2/F3: Color

CHAPTER 1
INTRODUCTION

1-1 FEATURES:

1. 100% IBM AT system compatible.
2. INTEL or AMD 80286-12 CPU running at 6/12MHz.
   HARRIS or AMD 80286-16 CPU running at 8/16MHz.
3. RAM subsystem, up to 4MB memory on board.
   – support 512K, 640K, 1M, 2M, 4M byte.
   – use 44256, 41256, 4464, 4164 DIP RAM and 256KB, 1MB SIP or SIM module RAM.
4. Supports 16MHz operation at 0 wait states with 80ns DRAMS.
5. Socket for 80287 math co-processor.
6. Supports Shadow RAM for System and Video BIOS.
7. Supports EMS memory function optional.
8. CMOS clock and calendar circuit with rechargeable battery support.
9. With seven 16bit and one 8bit expansion slots.
10. Size 22cm (L) x 20cm (W).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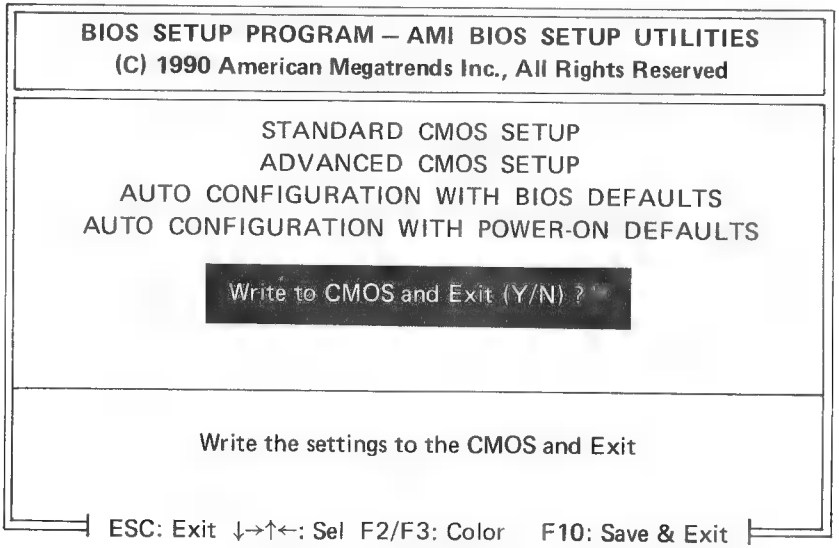
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Write the settings to the CMOS and Exit
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit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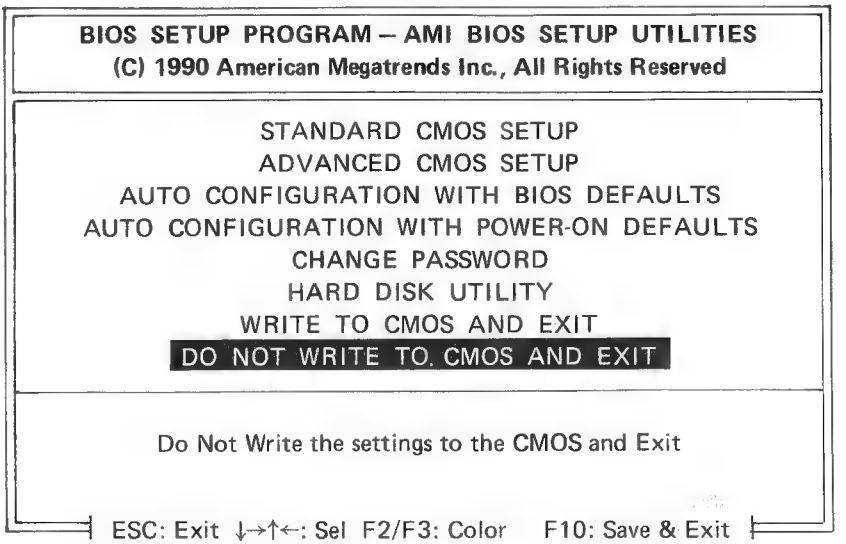
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
Write to CMOS and Exit (Y/N) ?
Write the settings to the CMOS and Exit
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit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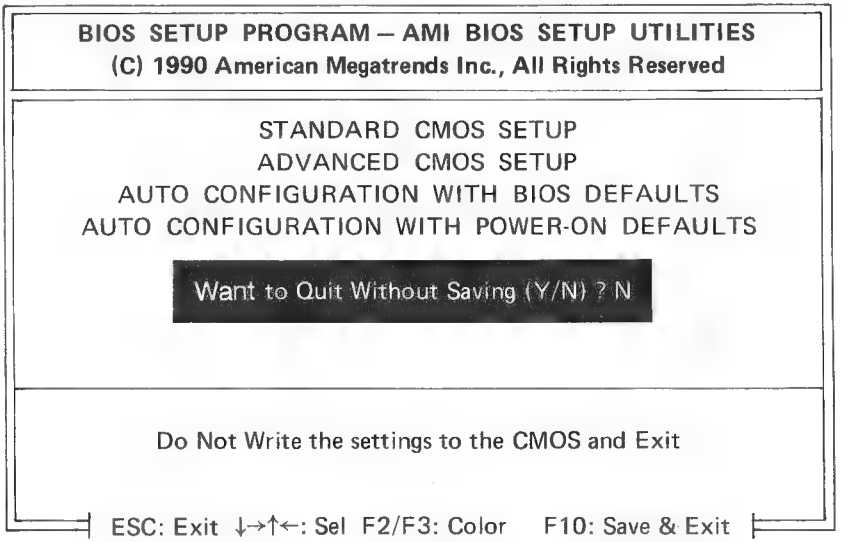
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Do Not Write the settings to the CMOS and Exit
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit


BIOS SETUP PROGRAM – AMI BIOS SETUP UTILITIES
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STANDARD CMOS SETUP
ADVANCED CMOS SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
Want to Quit Without Saving (Y/N) ? N
Do Not Write the settings to the CMOS and Exit
ESC: Exit ↓→↑←: Sel F2/F3: Color F10: Save & Exit

4-3 EMS DRIVE SETUP

Expanded memory specification (EMS) is designed for programs to use larger memory (over 640KB), but for the CPU, its ADDRESS" is still under the "ADDRESS" of base memory.

Same as the shadow RAM booting,

** BEFORE SYSTEM BOOTING:

Use an ASCII text editor to add these lines to the CONFIG.SYS file.

DEVICE = SEEMSHT.SYS

Then reset the machine, there will be on screen:

HT12SEEMS VERSION 1.63-EMS 4.0 DEVICE DRIVER

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When memory is only 1MB, then the memory tested is 384KB, and when memory is over 1MB, then the memory tested is the figure of "M" + 384KB.

The number "M" should be a multiple of 16.

4-4 KEYBOARD SPEED SELECT

In addition to setting the processor clock speed by the front panel switch or by SETUP program, you can also change it by keyboard command. To change the processor clock speed, please press: <Ctrl> <Alt> <+> or <Ctrl> <Alt> <–>.

CHAPTER 5
COMPONENT DIAGRAM

5-1 I/O Channel Specification
A Side [Slot 8 ~ 15]

I/O Pin	Signal Name	Input Output
A1	–I/O CH CK	Input
A2	SD7	Input/Output
A3	SD6	Input/Output
A4	SD5	Input/Output
A5	SD4	Input/Output
A6	SD3	Input/Output
A7	SD2	Input/Output
A8	SD1	Input/Output
A9	SD0	Input/Output
A10	–I/O CH RDY	Input
A11	AEN	Output
A12	SA19	Input/Output
A13	SA18	Input/Output
A14	SA17	Input/Output
A15	SA16	Input/Output
A16	SA15	Input/Output
A17	SA14	Input/Output
A18	SA13	Input/Output
A19	SA12	Input/Output
A20	SA11	Input/Output
A21	SA10	Input/Output
A22	SA9	Input/Output
A23	SA8	Input/Output
A24	SA7	Input/Output
A25	SA6	Input/Output
A26	SA5	Input/Output
A27	SA4	Input/Output
A28	SA3	Input/Output
A29	SA2	Input/Output
A30	SA1	Input/Output
A31	SA0	Input/Output

B Side, [Slot 8 ~ 15]

I/O Pin	Signal Name	Input Output
B1	GND	Ground
B2	RESET DRV	Output
B3	+5 Vdc	Power
B4	IRQ9	Input
B5	–5 Vdc	Power
B6	DRQ2	Input
B7	–12Vdc	Power
B8	OWS	Input
B9	+12Vdc	Power
B10	GND	Ground
B11	–SMEMW	Output
B12	–SMEMR	Output
B13	–IOW	Input/Output
B14	–IOR	Input/Output
B15	–DACK3	Output
B16	DRQ3	Input
B17	–DACK1	Output
B18	DRQ1	Input
B19	–REFRESH	Input/Output
B20	CLK	Output
B21	IRQ7	Input
B22	IRQ6	Input
B23	IRQ5	Input
B24	IRQ4	Input
B25	IRQ3	Input
B26	–DACK2	Output
B27	T/C	Output
B28	BALE	Output
B29	+5 Vdc	Power
B30	OSC	Output
B31	GND	Ground

C Side, [Slot 1 ~ 7]

I/O Pin	Signal Name	Input Output
C1	SHBE	Input Output
C2	LA23	Input/Output
C3	LA22	Input/Output
C4	LA21	Input/Output
C5	LA20	Input Output
C6	LA19	Input/Output
C7	LA18	Input/Output
C8	LA17	Input/Output
C9	–MEMR	Input/Output
C10	–MEMW	Input/Output
C11	SD08	Input/Output
C12	SD09	Input/Output
C13	SD10	Input/Output
C14	SD11	Input/Output
C15	SD12	Input/Output
C16	SD13	Input/Output
C17	SD14	Input/Output
C18	SD15	Input/Output

D Side, [Slot 1 ~ 7]

I/O Pin	Signal Name	Input Output
D1	–MEM CS16	Input
D2	–IO CS16	Input
D3	IRQ10	Input
D4	IRQ11	Input
D5	IRQ12	Input
D6	IRQ15	Input
D7	IRQ14	Input
D8	– DACK 0	Output
D9	DRQ 0	Input
D10	–DACK 5	Output
D11	DRQ 5	Input
D12	–DACK 6	Output
D13	DRQ 6	Input
D14	–DACK 7	Output
D15	DRQ 7	Input
D16	+5 Vdc	Power
D17	–MASTER	Input
D18	GND	Ground

5-2 I/O Address Map

Rex Range	Device Address	Usage
000-0FF	Reserved for system board I/O	System
000-01F	DMA Controller #1	System
020-03F	Interrupt Controller #1	System
040-05F	Timer	System
060, 062-06F	Keyboard Controller	System
061	Port B Register PPI	System
070-07F	Real Time Clock, NMI (Non-Interruptable Mask) bit	System
080-08F	DMA Page Register	System
090-091	Reserved	
092	Hot Reset and A20Gate	System
093-09F	Reserved	
0A0-0BF	Interrupt Controller #2	System
0C0-0DF	DMA Controller #2	System
0F0	Clear Math Coprocessor Busy	System
0F1	Reset Math Coprocessor	System
0F2-0F7	Reserved	
0F8-0FF	Math Coprocessor	System
1ED, 1EF	Configuration Register	System
1F0-1F8	Fixed disk	I/O
200-207	Game I/O	I/O
278-27F	Parallel printer port 2	I/O
2F8-2FF	Serial port 2	I/O
300-31F	Prototype card	I/O
360-36F	Reserved	I/O
378-37F	Parallel printer port 1	I/O
380-38F	SDLC, bisynchronous 2	I/O
3A0-3AF	Bisynchronous 1	I/O
3B0-3BF	Monochrome display and printer adapter	I/O
3C0-3CF	Reserved	I/O
3D0-3DF	Color/graphic monitor adapter	I/O
3F0-3F7	Diskette controller	I/O
3F8-3FF	Serial port 1	I/O

5-3 CMOS Ram Address Map

Address	Description
00-0D	Real-time clock information
0E	Diagnostic status byte
0F	Shutdown status byte
10	Diskette drive type byte, drives A: and B:
11	Reserved
12	Fixed disk type byte, drives C: and D
13	Reserved
14	Equipment byte
15	Low base memory byte
16	High base memory byte
17	Low expansion memory byte
18	High expansion memory byte
19-20	Reserved
2E-2F	2-byte CMOS checksum
30	Low expansion memory byte
31	High expansion memory byte
32	Date century byte
33	Information flags (set during power on)
34-3F	Reserved

5-4 Real – Time Clock Information

Address	Function	Byte
00	Seconds	0
01	Seconds alarm	1
02	Minutes	2
03	Minute alarm	3
04	Hours	4
05	Hour alarm	5
06	Day of week	6
07	Day of month	7
08	Month	8
09	Year	9
0A	Status register A	10
0B	Status register B	11
0C	Status register C	12
0D	Status register D	13

5-5 DMA Channels

Channel	Funtion
0	Spare (8-bit transfer)
1	SDLC (8-bit transfer)
2	Floppy disk (8-bit transfer)
3	Spare (8-bit transfer)
4	Cascade for DMA controller 1
5	Spare (8-bit transfer)
6	Spare (8-bit transfer)
7	Spare (8-bit transfer)

5-6 DMA Controller Registers

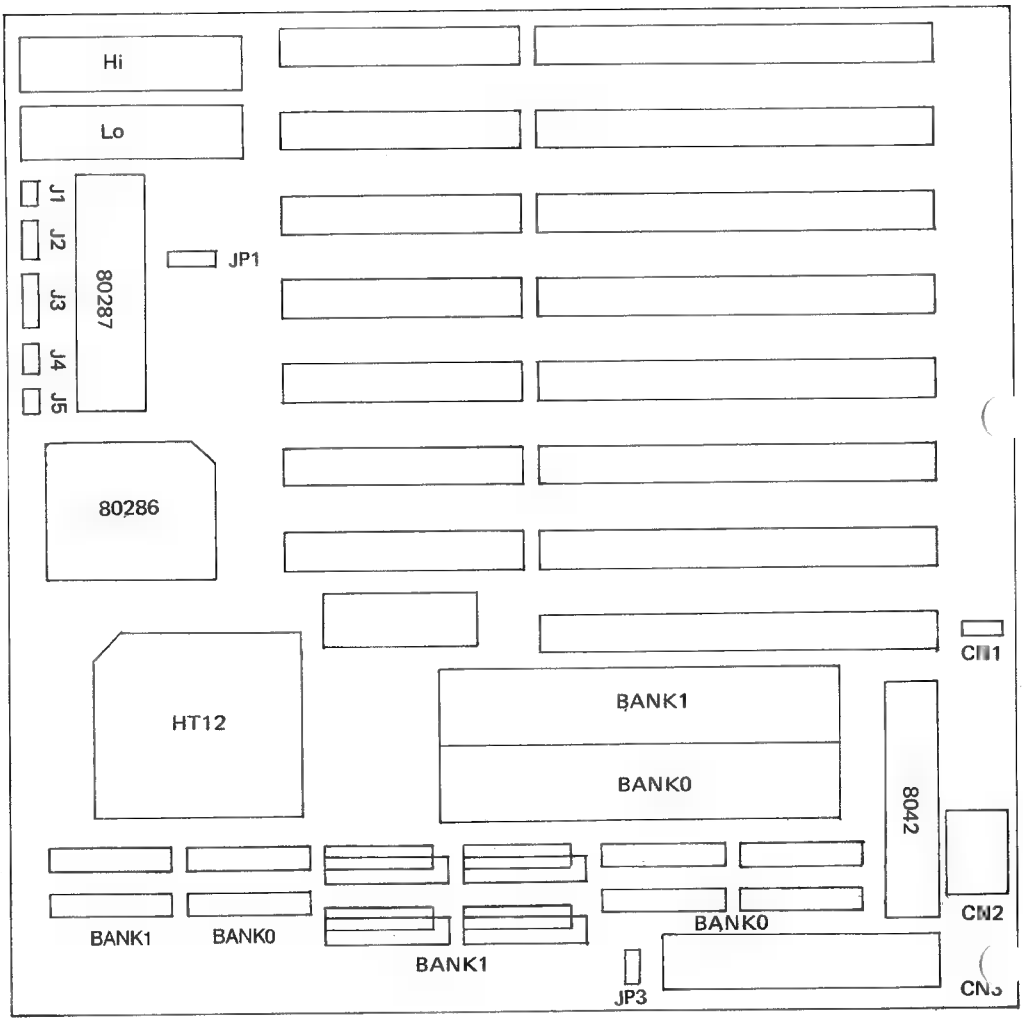
Hex Address	Command Codes
0C0	CH0 base and current address
0C2	CH0 base and current word count
0C4	CH1 base and current address
0C6	CH1 base and current word count
0C8	CH2 base and current address
0CA	CH2 base and current word count
0CC	CH3 base and current address
0CE	CH3 base and current word count
0D0	Read status register/Write command register
0D2	Write mode register
0D4	Read temporary register/Write command register
0D6	Write mode register
0D8	Clear byte pointer flif-flop
0DA	Read temporary register/Write mask clear
0DC	Clear mask register
0DE	Clear all mask register

5-7 Page Registers Addresses

Page Register	I/O Hex Address
DMA Channel 0	0087
DMA Channel 1	0083
DMA Channel 2	0081
DMA Channel 3	0082
DMA Channel 5	008B
DMA Channel 6	0089
DMA Channel 7	008A
Refresh	008F

CHAPTER 2
MAINBOARD INSTALLATION

2-1 LAYOUT



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2-2 JUMPER SETTING

J, CN: CONNECTOR
JP: JUMPER

CONNECTOR

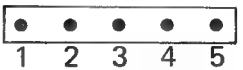
- CN1: EXTERNAL BATTERY CONNECTOR

1. +6 VDC
2. NOT USED
3. NOT USED
4. GROUND

- CN2: KEYBOARD CONNECTOR
- CN3: POWER CONNECTOR
- J1: SPEED CHANGE
- J2: SPEAKER CONNECTOR

1. SPEAKER OUTPUT
2. N.C.
3. GROUND
4. +5V

- J3: CONNECT THE KEYLOCK SWITCH TO THE KEYBOARD LOCK LED CONNECTOR



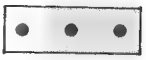
1. +5V
2. N.C.
3. GROUND
4. KEY
5. GROUND

- J4: TURBO LED CONNECTOR
  1. LED POWER
  2. GROUND
- J5: RESET CONNECTOR

JUMPER

JP1: 80287 CLOCK SELECTION

ASYNCHRONOUS WITH CPU CLOCK



SYNCHRONOUS WITH CPU CLOCK

JP3: DISPLAY TYPE SELECTION
SHORT: FOR COLOR MODE
OPEN: FOR MONOCHROME MODE

CHAPTER 3
MEMORY CONFIGURATION

3-1

DIP RAM		SIP/SIM MODULE		
BANK 0	BANK 1	BANK 0	BANK 1	TOTAL SIZE
44256x4 41256x2				512KB
		256K RAM MODULE x 2		512KB
44256x4 41256x2	4464x4 4164x2			640KB
	4464x4 4164x2	256K RAM MODULE x 2		640KB
44256x4 41256x2	44256x4 41256x2			1MB
		256K RAM MODULE x 2	256K RAM MODULE x 2	1MB
44256x4 41256x2			256K RAM MODULE x 2	1MB
	44256x4 41256x2	256K RAM MODULE x 2		1MB
		1M RAM MODULE x 2		2MB
		1M RAM MODULE x 2	1M RAM MODULE x 2	4MB

DRAM SETTING		THE MEMORY ON THE SCREENS SHOW AS:	TOTAL MEMORY
BANK 0	BANK 1		
256K	NONE	512K	512K
256K	256K	1024K	1024K
1M	NONE	* 1664K	2048K
1M	1M	* 3712K	4096K

* 384KB MEMORY FOR SHADOW RAM USED.

3-2 RAM MEMORY MAP

ON BOARD 1M BYTE

Address	Start-End	Name	Function
000000-07FFFF	000K-512K	BANKφ	SYSTEM MEMORY (512K)
080000-09FFFF	512K-640K	BANK1	SYSTEM MEMORY (128K)
0A0000-0BFFFF	640K-768K	VIDEO	GRAPHIC BUFFER (128K) /SHADOW RAM
0C0000-0DFFFF	768K-896K	I/O ROM	EXPANSION ROM (128K) /SHADOW RAM
0E0000-0EFFFF	896K-960K	ROM	SYSTEM USED (64K) /SHADOW RAM
0F0000-0FFFFF	960K-1,024K	ROM	BIOS (64K) /SHADOW RAM
100000-FDFFFF	1,024K-16,256K	RAM	EXPANSION RAM (15M)
FE0000-FEFFFF	16,256K-16,320K	ROM	SYSTEM USED (64K)
FE0000-FFFFFF	16,320K-16,384K	ROM	BIOS (64K)

ON BOARD 4M BYTE

Address	Start-End	Name	Function
000000-07FFFF	000K-512K	BANKφ	SYSTEM MEMORY (512K)
080000-09FFFF	512K-640K	BANKφ	SYSTEM MEMORY (128K)
0A0000-0BFFFF	640K-768K	VIDEO	GRAPHIC BUFFER (128K) /SHADOW RAM
0C0000-0DFFFF	768K-896K	I/O ROM	EXPANSION ROM (128K) /SHADOW RAM
0E0000-0EFFFF	896K-960K	ROM	SYSTEM USED (64K) /SHADOW RAM
0F0000-0FFFFF	960K-1,024K	ROM	BIOS (64K) /SHADOW RAM
100000-3FFFFF	1,024K-4,096K	RAM	SYSTEM MEMORY (3M)
400000-FDFFFF	4,096K-16,256K	RAM	EXPANSION RAM (12M)
FE0000-FEFFFF	16,256K-16,320K	ROM	SYSTEM USED (64K)
FF0000-FFFFFF	16,320K-16,384K	ROM	BIOS (64K)

3-3 BIOS SHADOW AND MEMORY RELOCATION

The 286HT supports BIOS shadowing in 16K blocks in the range of C0000 to FFFFF. In the case that 1M of memory is installed the 286HT also supports relocation of memory from address A0000 to address FFFFF that are not used in shadowing to above 1MB. The following table shows the various shadowing and relocation combinations. Basically, contiguous memory above A0000 that are not used in shadowing can be relocated in 64K blocks. However, the combination of shadowing in only C0000-CFFFF and F0000-FFFFF can have both A0000-BFFFF and D0000-EFFFF relocated.

Shadow Range	Reloc Range	Memory Relocated
No Shadowing	A0000—FFFFF	384K
C0000—	A0000—BFFFF	128K
D0000—	A0000—CFFFF	192K
E0000—	A0000—DFFFF	256K
F0000—	A0000—EFFFF	320K
C0000—CFFFF	A0000—BFFFF	256K
F0000—FFFFF	D0000—EFFFF	

For shadowing operations, the BIOS should first select the required shadowing ranges in Shadow RAM Configuration Registers 1 to 2. When an address range is selected for shadowing it becomes accessible and write only. This allows the BIOS to load ROM data into the shadow RAM. After all the shadow RAM are loaded, the BIOS enable the shadowing feature by setting the Shadow Enable bit in the Misc Feature Enable Register Index 14H. Once shadowing is enabled, the shadow RAM becomes read only and all read cycles to the selected address ranges will be directed to the shadow RAM.

CHAPTER 4
SETUP

4-1 AMI OLD BIOS SETUP

The following procedures assume your system has the AMI 286 BIOS installed. If your system has a different BIOS installed, these procedures will not work.

To run the SETUP, do the following:

Simultaneously press the <Ctrl> <Alt> <Del> keys to reboot the system (or turn the power on if the system is off). After the memory has been checked, the following message will appear on your screen:

Press <Del> if you want to SETUP or DIAGS

Press the <Del> key (the one that shares the decimal point at the bottom of the numeric keypad). In a moment, the following message will appear:

EXIT FOR BOOT
RUN COMS SETUP
RUN DIAGNOSTICS

Use the ↓ key to highlight "RUN COMS SETUP" and press the <Enter> key. A screen similar to the following will then appear:

CMOS SETUP (C) Copyright 1985-1990, American Megatrends Inc.,

Date (mn/date/year)	: Fri, Sep 21, 1990
Time (hour/min/sec)	: 12 : 00 : 00
Floppy drive A:	: 1.2 MB, 5¼"
Floppy drive B:	: 1.2 MB, 5¼"

	Cyln	Head	WPcom	LZone	Sect	Size
Hard disk C: type : 40	820	6	820	820	17	40 MB

Hard disk D: type : Not Installed

Primary display	: VGA or EGA
Keyboard	: Installed
BIOS shadow option	: Disabled
Scratch RAM option	: 1
EMS size option	: 0 KB
0 wait state option	: Enabled
Memory relocation	: Enabled

Base memory size : 640KB
Ext. memory size : 384KB
Numeric processor : Not installed

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

Month : Jan, Feb, ...Dec
Date : 01, 02, 03,.....31
Year : 1901, 1902,.....2099

ESC=Exit, ↓→↑← Select,
PgUp/PgDn= Modify

Use the ↓→↑← keys to highlight the parameters you want to change. Use the <PgUp> and <PgDn> keys to modify the values.

ITEM 1 Date and time

Use the ↓→↑← keys to select the parameters you want to change. Use the <PgUp> and <PgDn> keys to cycle through the available settings.

ITEM 2 Floppy disk drives

Select the Floppy drive field. Press the <PgUp> and <PgDn> keys to cycle throught the available setting. Available floppy disk drives are 5¼" (360KB, 1.2MB and 3½" (720KB, 1.44MB). If your system does not have a floppy drive B:, be certain to specify "Not installed".

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